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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,637	09/05/2003	Mingdeng Chen	X-1501 US	6775

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EXAMINER	
WELLS, KENNETH B	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/655,637	CHEN ET AL.	
	Examiner	Art Unit	
	Kenneth B. Wells	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9-15* is/are allowed.

6)☒ Claim(s) *1,6,7,16-18,20,21,23-25 and 29* is/are rejected.

7)☒ Claim(s) *2-5, 8, 19, 22 and 26-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/22/03*. & 9/5/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant's traversal of the restriction requirement mailed 8/26/04 is found to be persuasive and it is now withdrawn. An action on claims 1-29 follows.

2. Claims 1, 6, 9, 16, 18, 21, 23, 25 and 27 are objected to because "comprises" in the preamble of each should be changed to --comprising-- for purposes of proper grammatical form. In claims 7 and 15, the phrase "further comprises" should be changed to a comma. Also in claim 1, fourth line from the end, --a-- should be inserted at the beginning of the line. Also in claim 9, line 3, --an-- should be inserted at the beginning of the line; claim 16, lines 3, 7, 9 and 16, --a-- should be inserted at the beginning of the line; in claim 19, line 7, --a-- should be inserted at the beginning of the line (note also claims 23 and 26 have the same grammatical error). Finally, on the second to last line of claim 7, "regulated" should be changed to --regulate--. Appropriate correction is required.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 7 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Boni ("LVDS I/O Interface" April 2001) cited by applicant.

As to claim 1, note Fig. 2, where the recited "differential input signal" is Vin+, Vin-; the recited "load current source" reads on FET ML; the recited "first input transistor" reads on FET M1; the recited "second input transistor" reads on FET M2; the recited "first switchable current source" reads on FET M4; the recited "second switchable current source" reads on FET M3; the recited "source termination" reads on the combination of resistors RA and RB; the recited "load" reads on the circuitry which receives the output differential signal at the drains of FETs M1 and M2; and the recited "switchable current source" reads on the unillustrated circuitry which provides the Vin+ and Vin- signals to the gates of FETs M3 and M4 (these transistors are enabled based on the states of the differential input signal Vin+, Vin-).

As to claim 6, the recited "common mode voltage regulation circuit" reads on all of the circuitry in Boni's Fig. 2 that generates a control signal Vn (note that the common mode voltage regulation circuit is coupled to the drains of FETs M1 and M2,

via resistors RA and RB). The recited sensing of a common mode voltage (VCM) occurs at the gate input of FET M5, which is compared to a reference voltage (1.25V) applied to the gate of FET M6. The operation on the last two lines "to regulate the load current to maintain a desired common mode voltage level" is inherent in the circuitry of Boni et al's Fig. 2.

As to claim 7, the resistors are RA and RB, as noted above.

As to claim 16, the switchable current module is the combination of FETs M3 and M4; the source termination circuit is the combination of resistors RA and RB; the transistor section is the combination of M5 and M6; and the load current source is FET ML.

As to claim 17, the resistors are RA and RB, as noted above.

As to claim 18, the amplifier is again all of the circuitry in Boni's Fig. 2 that generates a control signal Vn.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 22 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boni in view of Feldman.

The use of capacitors between the inputs and the gates of the differential transistors, though not disclosed by Boni, would have been obvious to those having ordinary skill in the art because the use of such capacitors is old and well-known in the art, as taught by Feldman in Fig. 4, and the motivation for using such capacitors is to obtain the well-known benefit of passing the AC while blocking the DC components of the input signals.

5. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boni.

As to claim 23, using digital circuitry to provide the Vin+ and Vin- differential signal also would have been obvious, even though not disclosed by Boni, because the reference discusses transferring data in "giga-bits-per-second", thus suggesting the use of digital data signal, and thus digital circuitry for generating and transmitting this digital data. Using a plurality of the Boni Fig. 2 circuits also would have been obvious, even though not disclosed by Boni, because it is old

and well-known in the art that digital data receivers typically employ numerous LVDS interface circuits for transferring many different data signals between circuit components.

As to claims 24 and 25, note the above rejection of claims 17 and 18.

6. Claims 9-15 are allowed.

Claims 2-5, 8, 19-22 and 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B. Wells whose telephone number is (571)272-1757. The examiner can normally be reached on Monday through Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan, can be reached at (571)272-1740. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kenneth Wells

Kenneth B. Wells
Primary Examiner
Art Unit 2816

November 12, 2004